

The Changing Face of Quality Related to the Nuclear Renaissance

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- > **Changing market**
 - ◆ **Nuclear renaissance**
 - ◆ **Global marketplace**
 - ◆ **Higher levels of expectations and scrutiny**

- > **Focused areas of significant change**
 - ◆ **Nuclear Regulatory Commission (NRC) expectations and concerns**
 - ◆ **Institute of Nuclear Power Operations (INPO) Assists**
 - ◆ **American Society of Mechanical Engineers (ASME) expectations**
 - ◆ **Customer expectations**
 - ◆ **Supply Chain challenges**
 - ◆ **Resource Issues**

NRC Expectations

> NRC Changes and Expectations

- ◆ ***Re-organized to introduce the NRO (New Reactors) group to focus on new builds***
- ◆ ***SECY-07-0105, Vendor Inspection Program***
 - ***Focused on new reactor licensing and construction***
 - ***Increased inspection frequency***
 - ***Increased scrutiny***
 - ***Global marketplace***
 - ***Influence on Codes and Standards***
- ◆ ***NRC trend in recent inspection findings and overall concerns***
 - ***Corrective Action Program***
 - ***10 CFR 21***
 - ***Commercial Grade Dedication***
 - ***Fraudulent supply items***

Commission Paper On Vendor Inspection Program (SECY-07-0105)

> Purpose

- ◆ **To inform the Commission that the Office of New Reactors (NRO) is enhancing the NRO Vendor Inspection Program (VIP) in support of new reactor licensing and construction**
- ◆ **To describe these enhancements, including the development of program guidance and an anticipated increase in audit and inspection activities**

> Significant factors that led to expand oversight of nuclear component suppliers include the following:

- ◆ **The entry of new suppliers to the U.S. nuclear industry**
- ◆ **The use of modular construction techniques**
- ◆ **Inspections, tests, analyses, and acceptance criteria (ITAAC) verification**
- ◆ **Engineering and licensing support services to most applicants**

NRO Vendor Inspection Program

- > To the extent practical, leverage international regulatory oversight***
 - ◆ Currently being developed under Multi-National Design Evaluation Program (MDEP)***
 - ◆ ISO 9001 v. 10 CFR 50, App. B***
- > NRC participation in Codes & Standards Development***
 - ◆ ASME Section III & QAI***
 - ◆ ASME NQA-1***

NRC Expectations

- > NRC trend in recent inspection findings and overall concerns***
 - ◆ Corrective Action Program***
 - Overdue evaluations and actions***
 - Self-Identification of issues***
 - ◆ 10 CFR 21***
 - Errors in a vendor's evaluation, conclusion, and recommended reporting***
 - Vendor not meeting the timeliness requirements***
 - No procedural guidance existed for determining if a significant condition adverse to quality as part of the corrective action program within the Appendix B to 10 CFR Part 50 (Appendix B) QA program warranted a 10 CFR Part 21 evaluation***
 - Vendor evaluations performed under the corrective action program were utilized as the 10 CFR Part 21 evaluations***

NRC Expectations

- > **NRC trend in recent inspection findings and overall concerns**
 - ◆ **Commercial Grade Dedication**
 - **Commercial-grade surveys are not a generic programmatic review of a supplier's quality program**
 - **Commercial-grade surveys should focus on verifying the specific critical characteristics for the item being supplied/purchased**
 - **A safety function determination should:**
 - **Consider both design bases and parts classification (e.g., seismic and environmental qualification)**
 - **An engineering evaluation should:**
 - **Identify design/performance attributes (critical characteristics) necessary to perform safety-related structures, systems, and components (SSC) safety function**
 - **Procurement activities should:**
 - **Confirm the engineering evaluation (e.g., surveys, testing)**

NRC Expectations

> NRC trend in recent inspection findings and overall concerns

◆ Fraudulent Supply Items

- Suppliers must be monitored to ensure that fraudulent items do not enter the supply chain***
- Receipt inspection***
- Annual Supplier Evaluation***
- Supplier Audits***

◆ Examples

- Valve Replacement Parts***
- Refurbished Valves***
- Refurbished circuit breakers***

INPO Assists

- > INPO Assists performed in 2008 focused partially in the following areas:***
 - ◆ Corrective Action Program***
 - ◆ Self-Assessment Program***
 - ◆ Lessons Learned***
 - ◆ Operating Experience***
 - ◆ Expectation is for excellence***
 - Scoring and comparing utilities is driving performance improvements***

ASME Changes

> *ASME Changes and Expectations*

- ◆ *Increased NRC scrutiny*
- ◆ *Improve quality of ASME surveys*
 - *Increased survey frequency*
 - *Survey team size increases*
 - *Survey length increases*
 - *More thorough surveys*
 - *Surveys in remote locations*
- ◆ *Quality Deficiencies*
 - *Open after the survey*
 - *Possible delay in renewal of certifications*
- ◆ *New survey checklists being developed*
- ◆ *Surveys will focus on actual implementation as opposed to demonstrations*
- ◆ *Increased focus on Nuclear Industry Assessment Committee (NIAC)*

Customer Expectations

- > **Customer Changes and Expectations**
 - ◆ **Increased customer scrutiny**
 - **Mega - NUPIC audits include large teams for longer periods of time at different locations**
 - ◆ **Increased interest in continuous improvement efforts – focused on excellence as opposed to precise compliance**
 - **Corrective Action Program**
 - **Self-Assessment Program**
 - **Lessons Learned**
 - **Operating Experience**
 - **Metrics/Key Performance Indicators**
 - **Safety (nuclear and industrial)**
 - **More critical self-questioning organization**
 - **AREVA as one company**

Supply Chain

> *Supply Chain challenges*

- ◆ *Increase in new suppliers to the nuclear industry*
- ◆ *Increase in suppliers who withdrew from the industry and are now trying to return*
- ◆ *Strong nuclear quality culture with a clear understanding of the applicable NRC regulations*
 - *10 CFR 50, App. B*
 - *10 CFR 21*
- ◆ *Increase in NIAC membership*
- ◆ *Increased scrutiny by regulatory bodies and utilities*
- ◆ *Suppliers involved with Commercial Grade Dedication activities need rigorous engineering involvement*
- ◆ *May require extensive quality and procurement efforts from utilities and contractors to ensure supplier compliance and understanding*

Resource Needs

> Resource Needs

- ◆ *Lack of resources and aging workforce throughout our industry*
- ◆ *Specifically in Quality, qualifications require special training and time to internalize*
 - *Lead Auditors*
 - *QC Inspectors*
 - *Root Cause Investigators*
- ◆ *Lessons Learned training for the industry*
- ◆ *Training challenges*
 - *“Route and read” training is ineffective*
- ◆ *Increased training and qualification of personnel performing work*
 - *New employees entering the nuclear industry*
 - *Technical training*

Summary

- > Industry can expect increased oversight from NRC, ASME, and other regulatory bodies**
- > Contractors/Suppliers will be closely monitored by customers**
- > Enhanced emphasis on 10 CFR 21 and how it is applied**
- > Enhanced emphasis on Commercial Grade Dedication**
- > New suppliers in the industry will need to be coached and monitored closely to gain good understanding of nuclear industry requirements**
- > Need to provide training on lessons learned in the industry**
- > Increased training and qualification of personnel performing work**
- > Industry is focused on excellence as opposed to just compliance**

Questions?